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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/534,119 | 05/05/2005 | Hassan Ihs | SC12161ET | 2446 |

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EXAMINER

NGUYEN, LINH V

ART UNIT PAPER NUMBER

2819

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/534,119

Applicant(s)

IHS ET AL.

Examiner

Linh V. Nguyen

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-8 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to pre-appealed conference on 9/1/06, the rejection from previous office is withdrawn, and a new rejection is applying in this office action. Claims 3 and 9 – 14 have been canceled. Claim 1 – 2, 4 – 8 and 15 – 18 are pending on this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, and 4 - 5, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Steensgaard-Madsen U.S. patent No. 6,556,1858.

Regarding claim 1, Fig. 24 of Steensgaard-Madsen discloses a continuous time sigma delta converter (Col. 18 lines 3 – 4) comprising: conversion means (228[ADC]) having known non-ideal characteristics (Fig. 27) and arranged to provide an output signal ($d_0(k)$); a compensation circuit (232,234) comprising error modeling components (232,234) arranged to substantially model the non-ideal characteristics of the conversion means ($d_0(k)$) in order to provide a compensation signal ($d_1(k)$); and summation means (summing of $d(k)$) coupled to combine the compensation signal

($d_1(k)$) with the output signal ($d_o(k)$) in order to provide a compensated output signal ($d(k)$).

Regarding claim 4, Fig. 24 of Steensgaard-Madsen discloses a method of compensating for known non-ideal characteristics (Fig. 27) in a continuous time sigma delta converter (Col. 18 lines 3 - 4), the method comprising: converting an input signal of one time domain ($g(t)$) to an output signal of another time domain ($d(k)$) using a converter (228[ADC]) having known non-ideal characteristics (Fig. 27); modeling the non-ideal characteristics ($d_o(k)$) of the converter (228[AD]) in a compensation circuit (232,234); combining (summing of $d(k)$) a compensation signal output ($d_1(k)$) with the output signal of the converter ($d_o(k)$) in order to provide a compensated output signal ($d(k)$).

Regarding claims 5 and 15, Fig. 5 comprises the non-ideal characteristics ($d_o(k)$) being associated with a feedback path (232) of the converter.

Regarding claims 8, and 18 wherein the compensation circuit (320) having calibration parameters ($e(t)$) determined by a dichotomy technique (236,238), which iteratively refines the values of the calibration parameters ($e(t)$).

4. Claims 6 – 7, 16 and 17 rejected under 35 U.S.C. 102 (a) as anticipated over Handel et al. as applied to claims 1 and 4 above, and in view of Applicant Admitted Prior Art (AAPA).

Sigma-Delta converter of Handel et al. as applied to claims 1, and 4 above, does not explicitly disclose the non-ideal characteristics including asymmetrical or

symmetrical errors associated with non-ideal rising and falling edges of signal transitions of the converter. However the non-ideal of asymmetrical or symmetrical errors associated with non-ideal rising and falling edges of signal transition of the converter is an intrinsic characteristic by the feedback path of sigma-delta converter (See under Background of AAPA, on page 3, lines 5 – 20).

Allowable Subject Matter

5. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art does not teach wherein summation means being arranged to subtract the compensation signal from the output signal (output of 5) in order to provide the compensated output signal.

Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's

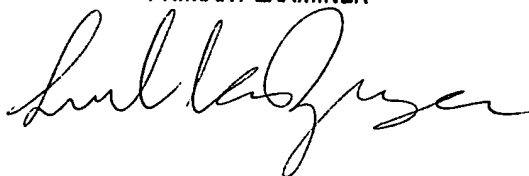
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supervisor, Mr. Rexford Barnie can be reached at (571) 272-7492. The fax phone numbers for the organization where this application or proceeding is assigned are (571-273-8300) for regular communications and (571-273-8300) for After Final communications.

LINH NGUYEN
PRIMARY EXAMINER

10/29/06

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A handwritten signature in cursive script, appearing to read 'Linh Nguyen', written in black ink.